

College of Basic and Applied Sciences

Upper Division Form 2019-2020 Catalog

Student name _____ Student # _____

Major **PHYSICS** Minor _____ (Optional)

Concentration **APPLIED PHYSICS** E-mail _____

Instructions: For students graduating in Summer 2019 or later, one (1) copy signed by major and minor advisors should be filed in DSB 120 three (3) semesters prior to graduation. An Intent to Graduate form must be submitted with this form.

General Education Area	Course	Semester	Grade	Prerequisites/Notes	Credit Hours
COMMUNICATION (9 hours)	ENGL 1010			Must earn a grade of C- or better	3
	ENGL 1020			Must earn a grade of C- or better	3
	COMM 2200				3
HISTORY (6 hours) Choose two: HIST 2010, HIST 2020, HIST 2030	HIST _____				3
	HIST _____				3
HUMANITIES AND/OR FINE ARTS (9 hours) Choose <u>one</u> : ENGL 2020, 2030 or HUM 2610. Choose <u>two</u> with different prefixes: ANTH 2210, ART 1030, 1920, DANC 1000, HIST 1010, 1020, 1110, 1120, MUS 1030, PHIL 1030, THEA 1030					3
					3
					3
MATHEMATICS (3 hours) Choose one: MATH 1010, 1530, 1630, 1710, 1720, 1730, 1810, 1910	MATH 1910			MATH 1910 is required for major	3
NATURAL SCIENCES (8 hours) Choose two different subjects: ASTR 1030/1031, BIOL 1030/1031, BIOL 1110/1111, BIOL 2010/2011, BIOL 2020/2021, CHEM 1010/1011, CHEM 1030/1031, CHEM 1110/1111 , GEOL 1030/1031, GEOL 1040/1041, PGEO 1030, PHYS 1110, PHYS 2010/2011, PHYS 2110/2111 , PSCI 1030/1031, PSCI 1130/1131	CHEM 1110/1111			CHEM 1110/1111 is required for the major	4
	PHYS _____			See below for prerequisites; PHYS is required for the major	4
SOCIAL/BEHAVIORAL SCIENCES (6 hours) Choose two (different rubrics): AAS 2100, ANTH 2010, ECON 2410, ECON 2420, EMC/JOUR/RIM 1020, GEOG 2000, GS 2010, HLTH 1530/1531, PS 1010, PS 1005, PSY 1410, RS 2030, SOC 1010, SOC 2010, WGST 2100					3
					3
Total:					41

Major Core (included in major GPA; 2.0 or better)	Course	Semester	Grade	Prerequisites/Notes	Credit Hours
Physics Colloquium (Fall only)	PHYS 1010				1
Introductory Physics I <i>PHYS 2010/2011 or PHYS 2110/2111</i> (PHYS 2110/2111 is offered in the Fall only)	PHYS _____ PHYS _____			PHYS 2010/2011: MATH 1710 with minimum grade of C (2.0 GPA), MATH 1730, or MATH 1910 PHYS 2110/2111: MATH 1910 with a minimum grade of C	4
Introductory Physics II <i>PHYS 2020/2021 or PHYS 2120/2121</i> (PHYS 2120/2121 is offered in the Spring only)	PHYS _____ PHYS _____			PHYS 2020/2021: PHYS 2011 PHYS 2120/2121: PHYS 2111 and MATH 1920 with a minimum grade of C	4
Modern Physics I <i>PHYS 3100 or PHYS 3070</i> (Fall only)	PHYS _____			PHYS 3100: PHYS 2021 or 2121 and MATH 1920 with a minimum grade of C PHYS 3070: PHYS 2021 or 2121 and MATH 1920	3
Modern Physics II <i>PHYS 3110 or PHYS 3080</i> (Spring only)	PHYS _____			PHYS 3110 Prereq: PHYS 3100 PHYS 3080 Prereq: PHYS 3070 or PHYS 3100	3
Modern Physics Lab (Spring only)	PHYS 3111			PHYS 3100 (or PHYS 3070)	1
Thermodynamics or Intermediate Physics <i>PHYS 3610 or PHYS 3510 or PHYS 3400</i>	PHYS _____			See online catalog for prerequisites; see department schedule for course offerings	3
Physics Seminar (Spring only)	PHYS 3800			PHYS 3110 (or PHYS 3080)	1
Physics Practicum	PHYS 3900			PHYS 3110 (or PHYS 3080) and consent of instructor	1
Research (<i>PHYS or ASTR</i>)	____ 4850			Consent of instructor	2
Senior Thesis (<i>PHYS or ASTR</i>)	____ 4900			PHYS 4850 or PHYS 4860 and consent of department chair	2

Major/concentration requirements are continued on the next page.

Concentration (included in major GPA; 2.0 or better)	Course	Semester	Grade	Prerequisites/Notes	Credit Hours	
Theoretical Physics I or Calculus III or Differential Equations	<i>PHYS 3150</i> (Fall only) <i>MATH 3110</i> <i>MATH 3120</i>			PHYS 3150: PHYS 2021 or 2121 and MATH 1920 with a minimum grade of C MATH 3110: MATH 1920 MATH 3120: MATH 1920 with a minimum grade of C	3-4	
Physics or Astronomy Upper Division electives (must total at least 5 hours)				See online catalog for prerequisites	2-3	
				See online catalog for prerequisites	3-4	
Cognate Electives (must total at least 15 credits; list of cognate electives on next page; See online catalog for prerequisites for all cognate electives)						
Cognate Elective					3-4	
Cognate Elective					3-4	
Cognate Elective					3-4	
Cognate Elective					3-4	
Cognate Elective					3-4	
48 hours in major GPA					Total	48

Supporting Courses (excluded from major GPA)	Course	Semester	Grade	Prerequisites/Notes	Credit Hours
Calculus I	MATH 1910			Pre-req: MATH 1730 with a C(2.0) or higher, ACT MATH of 26, or Calculus Placement test with satisfactory score; must earn a grade of C(2.0) or higher; 3 credits also count in general education	1
Calculus II	MATH 1920			Pre: MATH 1910 with a C(2.0) or higher	4
General Chemistry I	CHEM 1110/1111			High school chemistry; credits counted in general education	0
General Chemistry II	CHEM 1120/1121			CHEM 1110/1111 with a minimum grade of C-	4
Computer Science I	CSCI 1170			MATH 1730 with a C(2.0) or higher, ACT MATH of 26, or Calculus Placement test with satisfactory score	4
Total:					13

Minor OR Elective Courses (Minor is optional; At least 18 credits of elective hours must be upper division (3000/4000 level))	Course	Semester	Grade	Notes	Credit Hours
Total:					
Signed:					
	Minor Advisor (if applicable)				Date

- Degrees require a minimum of 120 semester hours (12 of the last 18 at MTSU) with a 2.0 GPA, a minimum of 42 upper-division hours (30 at MTSU) with a 2.0 GPA, and a minimum of 60 senior college hours.
- Learning Support courses count toward the 120-hour requirement and the overall GPA.

Signed:				
	Physics Advisor			
	Date			

Cognate Electives

Course	Name	Hours	Course	Name	Hours
Advanced Physics or Astronomy Any upper division PHYS or ASTR, including:					
PHYS 3930	The Teaching of Physics	3	PHYS 3520	Optics and Phonics	3
PHYS 3950/3960	Reasoning of Physics I/II	1	PHYS 4310/4330	Electricity and Magnetism I / II	3
PHYS 3150/3160	Topics and Methods of Theoretical Physics I / II	3	PHYS 4380/4390	Quantum Mechanics I / II	3
PHYS 3200	Scientific Modeling	2	ASTR 3400	Fundamentals of Astrophysics	3
PHYS 3300	Classical Mechanics	3	PHYS 3310/3350	Digital or Analog Electronics	3-4
Information Systems			Computational Methods		
INFS 2400	Web Development	3	CSCI 2170	Computer Science II	4
INFS 3100	Principles of Management Information Systems	3	CSCI 3130	Assembly and Computer Organization	3
INFS 3200	Business Application Development	3	CSCI 3180	Introduction to Numerical Analysis	3
INFS 3400	Object Oriented Programming with C#.NET	3	CSCI 3240	Introduction to Computer Systems	3
INFS 4300	Security Assurance for Information Systems Audit	3	CSCI 3110	Algorithms and Data Structures	3
INFS 4790	Database Design and Development	3	CSCI 4330	Parallel Processing Concepts	3
Engineering Systems			Business Analytics		
ENGR 1100	Engineering Fundamentals	3	BIA 2610	Statistical Methods	3
ENGR 2100	Introduction to Engineering Design	3	BIA 3620	Intro to Business Analytics	3
ENGR 2210	Introduction to Materials Science & Engr	3	BIA 3621	Intro to Business Analytics Lab	1
ENGR 3920	Engineering Safety	3	MGMT 3620	Supply Chain Operations	3
ENGR 3970	Engineering Economy	3	BIA 4010	Business Analytics and Visualizations	3
ET 4630	Local Area Networks	3	BCED 4670	International Business Communication	3
Actuarial			Business Administration		
STAT 3150	Mathematical Statistics I	3	ACTG 3000	Survey of Accounting for General Business	3
STAT 4190	Mathematical Statistics II	3	FIN 3000 or 3010	Principles of Financial Management or Business Finance	3
ACSI 4140	Mathematical Foundations of Actuarial Science	3	BLAW 3400 or 3430	Legal Environment of Business or Commercial Law	3
ACSI or MATH 4200	Introduction to Mathematics of Investment	3	MGMT 3610	Principles of Management	3
ACSI 4230	Mathematics of Compound Interest	3	MKTG 3820	Principles of Marketing	3
Natural Science			Supplemental Mathematics		
BIOL 1110/1111	General Biology I/Lab	4	MATH 2010	Elements of Linear Algebra	3
BIOL 1120/1121	General Biology II/Lab	4	MATH 2050	Probability and Statistics	3
BIOL 2230/2231	Microbiology	4	MATH 3260	Differential Equations II	3
CHEM 3010/3011	Organic Chemistry I/Lab	4	MATH 3460	Foundations of Higher Mathematics	3
CHEM 3020/3021	Organic Chemistry II/Lab	4	MATH 3070	College Geometry	3
CHEM 3530/3531	Principles of Biochemistry/Lab	4	MATH 3080	Discrete Structures	3